

## **REMARKS**

Claims 1-14 and 17-20 are now pending in the application. Claims 1-14 stand rejected. Claims 15 and 16 are cancelled. Claims 1, 8, and 17 are amended. Claims 18-20 are added. Support for the amendments and additions can be found in the originally filed specification at paragraphs [0018]-[0025]. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 102**

Claim 17 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Roth (U.S. Pat. No. 5,131,045). This rejection is respectfully traversed.

The teachings of Roth are generally directed toward audio-augmented data keying. In particular, the Examiner relies on Roth to teach using DTMF to determine entry points into a store of speech recognition templates. However, Roth fails to teach an information database that is a hierarchical data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input, and a constraint module that requires entry by a user of only so many classes via non-speech input as required to provide sufficient constraint for speech recognition in accordance with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information.

Applicants' claimed invention is generally directed toward constraint-based speech recognition. In particular, Applicants' claimed invention is directed toward generating candidate information using an information database that is a hierarchical

data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input, and a constraint module that requires entry by a user of only so many classes via non-speech input as required to provide sufficient constraint for speech recognition in accordance with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information. For example, independent claim 17, especially as amended, recites, "the information database is a hierarchical data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input; and generating candidate information based on the non-speech input, the candidate information corresponding to a portion of the searchable information, including requiring entry by a user of only so many classes contained in said non-speech input as required to provide sufficient constraint for speech recognition in accordance with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information." Support for the amendment can be found in the originally filed specification at paragraphs [0018]-[0025]. Therefore, Roth fails to teach all of the limitations of the independent claim 17.

Accordingly, Applicants respectfully request the Examiner reconsider and withdraw the rejection of independent claim 17 under 35 U.S.C. § 102(b).

### **REJECTION UNDER 35 U.S.C. § 103**

Claims 1-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Barclay (U.S. Pat. No. 5,960,399) in view of Medan (U.S. Pat. No. 5,530,950) and Roth (U.S. Pat. No. 5,131,045). This rejection is respectfully traversed.

The teachings of Barclay are generally directed toward a client/server speech processor/recognizer. In particular, the Examiner relies on Barclay to teach use of speech recognition with a form filling application. However, Barclay does not teach, suggest, or motivate an information database that is a hierarchical data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input, and a constraint module that requires entry by a user of only so many classes via non-speech input as required to provide sufficient constraint for speech recognition in accordance with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information.

The teachings of Medan et al. are generally directed toward audio data processing. In particular, the Examiner relies on Medan et al. to teach using DTMF keys to identify fields in a form to be filled. However, Medan et al. do not teach, suggest, or motivate an information database that is a hierarchical data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input, and a constraint module that requires entry by a user of only so many classes via non-speech input as required to provide sufficient constraint for speech recognition in accordance

with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information.

The teachings of Roth are generally directed toward audio-augmented data keying. In particular, the Examiner relies on Roth to teach using DTMF to determine entry points into a store of speech recognition templates. However, Roth fails to teach, suggest, or motivate an information database that is a hierarchical data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input, and a constraint module that requires entry by a user of only so many classes via non-speech input as required to provide sufficient constraint for speech recognition in accordance with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information.

Applicants' claimed invention is generally directed toward constraint-based speech recognition. In particular, Applicants' claimed invention is directed toward generating candidate information using an information database that is a hierarchical data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input, and a constraint module that requires entry by a user of only so many classes via non-speech input as required to provide sufficient constraint for speech recognition in accordance with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information. For example, independent claim 1, especially as amended,

recites, "a constraint module operable to: a) access an information database containing information suitable for use with speech recognition, wherein the information database is a hierarchical data structure of short lists of speech recognition candidates, the shortlists being hierarchically arranged according to pre-defined classes that can be entered via the non-speech input, and b) generate candidate information based on the non-speech input and the information database, the candidate information corresponding to a portion of the information, wherein said constraint module requires entry by a user of only so many classes via the non-speech input as required to provide sufficient constraint for speech recognition in accordance with at least one of: (a) a maximum amount of the candidate information; or (b) a maximum measure of confusability between candidates of the candidate information. Independent claim 8, especially as amended, recites similar subject matter." Support for the amendments can be found in the originally filed specification at paragraphs [0018]-[0025]. Therefore, Barclay, Medan et al., and Roth fail to teach all of the limitations of the independent claim 17.

Accordingly, Applicants respectfully request the Examiner reconsider and withdraw the rejection of independent claims 1 and 8 under 35 U.S.C. § 103(a), along with rejection on these grounds of all claims dependent therefrom.

## CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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